Cell and Tissue Research

Continuation of Zeitschrift für Zellforschung und mikroskopische Anatomie

Vol. 184 · 1977

Edited by

W. Bargmann, Kiel
D. S. Farner, Seattle
B. Lofts, Hong Kong
A. Oksche, Giessen
B. Scharrer, New York

In Cooperation with

A. Björklund, Lund
R. A. Cloney, Seattle
G. v. Ehrenstein, Göttingen
J. Flament-Durand, Bruxelles
G. Goldspink, Hull
T. Hökfelt, Stockholm
D. Szöllösi, Jouy-en-Josas
L. Vollrath, Mainz

Springer International

Cell and Tissue Research

This journal was founded in 1924 as the Zeitschrift für Zellen- und Gewebelehre, from Vol. 2 (1925) it was published with the subtitle: Continuation of the Schultze-Waldeyer-Hertwig Archiv für mikroskopische Anatomie. Zeitschrift für Zellforschung und mikroskopische Anatomie (Vols. 1–20) (1934) as: Zeitschrift für wissenschaftliche Biologie (Abteilung B) edited by *R. Goldschmidt, W. von Möllendorff, H. Bauer, J. Seiler.* Vols. 2–28 (1938) edited by *R. Goldschmidt* and *W. von Möllendorff.* Vols. 29–33 (1944) as: Zeitschrift für Zellforschung und mikroskopische Anatomie, Abteilung A, Allgemeine Zellforschung und mikroskopische Anatomie, edited by *W. von Möllendorff* and *J. Seiler*, from Vol. 34 without the subtitle, Abteilung A, Allgemeine Zellforschung und mikroskopische Anatomie. From Vol. 36 (1951) edited by *W. Bargmann, J. Seiler*; from Vol. 53 (1960) edited by *W. Bargmann, B. Scharrer, J. Seiler;* from Vol. 83 (1967) edited by *W. Bargmann, D.S. Farner, A. Oksche, B. Scharrer, J. Seiler;* from Vol. 125 (1972) edited by *W. Bargmann, D.S. Farner, F. Knowles, A. Oksche, B. Scharrer.* Beginning with Vol. 125 (1972) with the subtitle Cell and Tissue Research and beginning with Vol. 148 (1974) under the title Cell and Tissue Research and the subtitle Continuation of Zeitschrift für Zellforschung und mikroskopische Anatomie. Beginning with Vol. 164 (1975) edited by *W. Bargmann, D.S. Farner, B. Lofts, A. Oksche, B. Scharrer.* Beginning with Vol. 166 (1976) in cooperation with: *A. Björklund, R.A. Cloney, G.v. Ehrenstein, J. Flament-Durand, G. Goldspink, T. Hökfelt, D. Szöllösi, L. Vollrath.*

Published: Vols. 34–35 (1948–1950) Springer, Wien, from Vol. 36 Springer, Berlin.

The exclusive copyright for all languages and countries, including the right, for photomechanical and any other reproductions, also in microform, is transferred to the publisher.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag, Berlin·Heidelberg·New York

Printers: Universitätsdruckerei H. Stürtz AG, Würzburg

Printed in Germany – © by Springer-Verlag Berlin-Heidelberg 1977

Contents of Volume 184, 1977

No. 1 issued on October 21, 1977

N. Goossens, S. Blähser, A. Oksche, F. Vandesande, K. Dierickx: Immunocytochemical Investigation of the Hypothalamo-Neurohypophysial System in Birds 1

K. Dierickx, F. Vandesande: Immunocytochemical Localization of the Vasopressinergic and the Oxytocinergic Neurons in the Human Hypothalamus 15

W. E. Stumpf, M. A. Hellreich, G. Aumüller, J. C. Lamb, IV, M. Sar: The Collicular Recess Organ: Evidence for Structural and Secretory Specialization of the Ventricular Lining in the Collicular Recess 29

E. Hallberg: The Fine Structure of the Compound Eyes of Mysids (Crustacea: Mysidacea) 45

C. J. Gravis, F. J. Weaker: Testicular Involution Following Optic Enucleation. An Ultrastructural and Cytochemical Study 67

B. Scharrer, S. Wurzelmann: Neurosecretion. XVI. Protrusions of Bounding Membranes of Neurosecretory Granules 79

V. B. Meyer-Rochow, S. Walsh: The Eyes of Mesopelagic Crustaceans: I. *Gennadas* sp. (Penaeidae) 87

H. Knoche, E.-W. Kienecker: Sympathetic Innervation of the Carotid Bifurcation in the Rabbit and Cat: Blood Vessels, Carotid Body and Carotid Sinus. A Fluorescence and Electron Microscopic Study 103

J. L. Haar: An in vitro Morphological Study of the Mouse Visceral Yolk Sac and Possible Yolk Sac Immunocyte Precursors 113

R. Jarskär: Electron Microscopical Study on the Development of the Nerve Supply of the Pituitary Pars intermedia of the Mouse 121

Short Communications

M. E. McNeill: An Unusual Organelle in the Pineal Gland of the Rat 133

E. Tani, T. Itagaki, M. Nakano: Tight Junctions of Oligodendrocytes 139

No. 2 issued on October 26, 1977

I. E. Lawrence, Jr., H. W. Burden, M. L. Capps: Ultrastructure of Rat Ovarian Interstitial Gland Cells during Pregnancy 143

H. Suzuki, K. Fukuyama, W. L. Epstein: Changes in Nuclear DNA and RNA during Epidermal Keratinization 155

S. Fossum, K. M. Gautvik: Stereological and Biochemical Analysis of Prolactin and Growth Hormone Secreting Rat Pituitary Cells in Culture. Stereology Combined with Non-Parametrical Statistics 169

S. J. Jones, A. Boyde: The Migration of Osteoblasts 179

G. Gabella: Arrangement of Smooth Muscle Cells and Intramuscular Septa in the Taenia coli 195

L. H. P. M. Rademakers: Effects of Isolation and Transplantation of the Corpus cardiacum on Hormone Release from Its Glandular Cells after Flight in *Locusta migratoria*. A Quantitative Electron Microscopical Study 213

U. Heusermann, H. J. Stutte: Electron Microscopic Studies of the Innervation of the Human Spleen 225

B. Krisch: Electronmicroscopic Immunocytochemical Study on the Vasopressin-Containing Neurons of the Thirsting Rat 237

H. D. Hall, C. A. Schneyer: Functional Mediation of Compensatory Enlargement of the Parotid Gland 249

S. Meier: Initiation of Corneal Differentiation Prior to Cornea-Lens Association 255

G. Pappritz, H. Keazor, H. Ueberberg: Estrous Cycle-Controlled Cell Proliferation in the Adrenal Cortex of Female Rats 269

M. N. Adal: Leptofibrils in Intrafusal Muscle Fibres of Muscle Spindles in the Domestic Fowl 281

No. 3 issued on November 7, 1977

H. Kryvi: Ultrastructure of the Different Fibre Types in Axial Muscles of the Sharks *Etmopterus spinax* and *Galeus melastomus* 287

J. L. Brandenburger: Cytochemical Localization of Acid Phosphatase in Regenerated and Dark-Adapted Eyes of a Snail, *Helix aspersa* 301

V. Helmstaedter, G. Mühlmann, G. E. Feurle, W. G. Forssmann: Immunohistochemical Identification of Gastrointestinal Neurotensin Cells in Human Embryos 315

H. Hecker: Structure and Function of Midgut Epithelial Cells in Culicidae Mosquitoes (Insecta, Diptera) 321

J. C. Beauvillain, M. Mazzuca, M. P. Dubois: The Prolactin and Growth-Hormone Producing Cells of the Guinea-Pig Pituitary. Electron Microscopic Study Using Immunocytochemical Means 343

A. J. G. Moir: On the Ultrastructure of the Abdominal Sense Organ of the Giant Scallop, *Placopecten magellanicus* (Gmelin) 359

A. J. G. Moir: Ultrastructural Studies on the Ciliated Receptors of the Long Tentacles of the Giant Scallop, *Placopecten magellanicus* (Gmelin) 367

L. H. P. M. Rademakers: Identification of a Secretomotor Centre in the Brain of *Locusta migratoria*, Controlling the Secretory Activity of the Adipokinetic Hormone Producing Cells of the Corpus cardiacum 381

W. M. Blaney: The Ultrastructure of an Olfactory Sensillum on the Maxillary Palps of *Locusta migratoria* (L.) 397

K.-O. Söderström: Effect of Actinomycin D on the Structure of the Chromatoid Body in the Rat Spermatids 411

Short Communication

V. Storch, U. Welsch: Septate Junctions in the Cephalic Epidermis of Turbellarians (*Bipalium*) 423

No. 4 issued on November 23, 1977

J. Martal, J. Djiane, M. P. Dubois: Immunofluorescent Localization of Ovine Placental Lactogen 427

A. P. M. Lamers, G. J. A. Speijers, A. M. Stadhouders: Histochemistry of the Juxtaglomerular Apparatus in the Toad *Bufo bufo.* The Glucose-6-Phosphate Dehydrogenase Activity of the Macula densa 435

V. Helmstaedter, G. E. Feurle, W. G. Forssmann: Ultrastructural Identification of a New Cell Type – the N-Cell as the Source of Neurotensin in the Gut Mucosa 445

Ö. Lundkvist, I. Ljungkvist: Morphology of the Rat Endometrial Stroma at the Appearance of the Pontamine Blue Reaction during Implantation after an Experimental Delay 453

L. T. Wasserthal, W. Wasserthal: Innervation of Heart and Alary Muscles in *Sphinx ligustri* L. (Lepidoptera). A scanning and Transmission Electron Microscopic Study 467

L. Nicander, M. Malmqvist: Ultrastructural Observations Suggesting Merocrine Secretion in the Initial Segment of the Mammalian Epididymis 487

L. Désy, G. Pelletier: Immunohistochemical Localization of Somatostatin in the Human Hypothalamus 491

B. Benson, M. Krasovich: Circadian Rhythm in the Number of Granulated Vesicles in the Pinealocytes of Mice. Effects of Sympathectomy and Melatonin Treatment 499

J. A. Firth, A. Farr: Structural Features and Quantitative Age-Dependent Changes in the Intervascular Barrier of the Guinea-Pig Haemochorial Placenta 507

I. Stewart, S. Peel: The Structure and Differentiation of Granulated Metrial Gland Cells of the Pregnant Mouse Uterus 517

I. Davies: The Effect of Diet on the Ultrastructure of the Mid-Gut Cells of *Nasonia vitripennis* (Walk.) (Insecta: Hymenoptera) at Various Ages 529

M. C. Thorndyke: Observations on the Gastric Epithelium of Ascidians with Special Reference to *Styela clava* 539

M. W. J. Megaw: The Innervation of the Salivary Gland of the Tick, *Boophilus microplus* 551

Indexed in Current Contents

Author-Index of Volume 184, 1977

Adal, M.N. 281
Aumüller, G. 29

Beauvillain, J.C. 343
Benson, B. 499
Blähser, S. 1
Blaney, W.M. 397
Boyde, A. 179
Brandenburger, J.L. 301
Burden, H.W. 143

Capps, M.L. 143

Davies, I. 529
Désy, L. 491
Dierickx, K. 1, 15
Djiane, J. 427
Dubois, M.P. 343, 427

Epstein, W.L. 155

Farr, A. 507
Feurle, G.E. 315, 445
Firth, J.A. 507
Forssmann, W.G. 315, 445
Fossum, S. 169
Fukuyama, K. 155

Gabella, G. 195
Gautvik, K.M. 169
Goossens, N. 1
Gravis, C.J. 67

Haar, J.L. 113
Hall, H.D. 249
Hallberg, E. 45
Hecker, H. 321
Hellreich, M.A. 29
Helmstaedter, V. 315, 445
Heusermann, U. 225

Itagaki, T. 139

Jarskär, R. 121
Jones, S.J. 179

Keazor, H. 269
Kienecker, E.-W. 103
Knoche, H. 103
Krasovich, M. 499
Krisch, B. 237
Kryvi, H. 287

Lamb, J.C., IV 29
Lamers, A.P.M. 435
Lawrence, I.E., Jr. 143
Ljungkvist, I. 453
Lundkvist, Ö. 453

Malmqvist, M. 487
Martal, J. 427
Mazzuca, M. 343
McNeill, M.E. 133
Megaw, M.W.J. 551
Meier, S. 255
Meyer-Rochow, V.B. 87
Moir, A.J.G. 359, 367
Mühlmann, G. 315

Nakano, M. 139
Nicander, L. 487

Oksche, A. 1

Pappritz, G. 269
Peel, S. 517
Pelletier, G. 491

Rademakers, L.H.P.M. 213, 381

Sar, M. 29
Scharrer, B. 79
Schneyer, C.A. 249
Söderström, K.-O. 411
Speijers, G.J.A. 435
Stadhouders, A.M. 435
Stewart, I. 517
Storch, V. 423
Stumpf, W.E. 29
Stutte, H.J. 225
Suzuki, H. 155

Tani, E. 139
Thorndyke, M.C. 539

Ueberberg, H. 269

Vandesande, F. 1, 15

Walsh, S. 87
Wasserthal, L.T. 467
Wasserthal, W. 467
Weaker, F.J. 67
Welsch, U. 423
Wurzelmann, S. 79

Instructions to Authors

1. Manuscripts are to be submitted in duplicate, typed double-spaced with wide margins using one side of the paper only. They must be prepared carefully in the style of this journal. Typing errors must be corrected legibly.

The text is to be arranged in the following sections: Introduction, Material and Methods, Results, Discussion, and References. The text must be concise and consistent as to spelling, abbreviations, etc., with the pages numbered consecutively. The desired position of figures and tables should be indicated in the margin. Changes in the proofs must be minimized; a charge will be made for changes introduced after the manuscript has been set in type.

In order to assure the widest possible readership only manuscripts written in English will be considered. Authors not entirely familiar with English usage are advised to seek the assistance of an English-speaking colleague. Editorial assistance on English manuscripts is available when needed. However, correct style is the responsibility of the authors.

Manuscripts that have been extensively corrected in the editorial process will be returned to the author for retyping.

Brief accounts of particularly interesting results can be published out of turn as "Short Communications." They may not exceed two, or at the most, three printed pages, including one table or figure, should such be necessary. The editors reserve the decision as to whether a manuscript qualifies as a "Short Communication."

2. A brief summary of no more than 200 words is required. An additional, but no longer, summary in German or French may be included.

3. Immediately following the summary no more than five English **Key Words** must be supplied for subject indexing. These key words should be taken from Index Medicus (Medical Subject Headings), or composed on the same principle.

4. The first page of the manuscript must furnish the following information: Title, names of authors, departmental and institutional affiliation, running head (condensed title), not to exceed 72 letters and spaces, and address to which proofs are to be sent.

5. Dedications and short acknowledgements to persons and organizations are to be inserted as footnotes on the first page. Footnotes that do not refer to the title or authors are to be numbered consecutively.

6. Small print. Text of secondary importance, including Material and Methods, will appear in small print and must be so indicated.

7. Citations. In text, names of authors must be followed by the year of publication. In cases in which there are more than two authors, only the first is named, followed by "et al." All papers cited in text, and only these, are to be listed under References.

The list of **References,** to be placed at the end of the paper, must be in **alphabetical order.** Several publications by the same author or group of authors are to be listed in chronological order; those published in the same year are to be distinguished by the suffixes a, b, c, etc.

References to articles in periodical publications must include: Names and initials of all authors, complete title of paper, name of journal (abbreviated in accordance with Index Medicus), number of volume, first and last page numbers, and year of publication.

References to books must include: Names of authors, full title, edition, place of publication, publisher, and year of publication.

Samples:

Boquist, L.: Occurrence of oxyphil cells in suppressed parathyroid glands. Cell Tiss. Res. **163**, 465–470 (1975)

Deane, H.W.: The anatomy, chemistry, and physiology of adrenocortical tissue. In: Handbuch der experimentellen Pharmakologie. Bd. XIV/1. (O. Eichler and A. Farah, eds.) Berlin-Göttingen-Heidelberg: Springer 1962

8. The number and size of the **illustrations** must be consistent with the minimum requirement for clarification of the text. Previously published figures cannot be accepted. Explanations of figures furnished as legends must not be repeated in the text. Legends must be **brief,** self-sufficient explanations of the illustrations in no more than four or five lines. Numerical data given in graphs or tables should not be repeated in text. As a rule, requests for color reproductions cannot be approved unless the authors can bear the costs. The journal is not subsidized in any way. Therefore, when papers have **an excessive number of illustrations** (even though the editors agree that they are essential), it is necessary that the author, or his or her institution, contribute to the cost of reproduction.

Letraset (instant lettering) is recommended for lettering electron micrographs, including figure numbers. All figures, whether photographs, graphs, or diagrams, must be numbered consecutively and submitted on separate sheets. Parts of figures that require particular care in reproduction should be indicated on a transparent overlay with a soft pencil.

Halftone illustrations in the final size desired should be mounted together to save space without necessarily taking their numerical order into consideration. **Including the legends**, however, they must not exceed the size of the printed page (122 × 195 mm). Individual figures grouped together must be separated by spaces of no more than 1 mm. They must be mounted on thin cardboard or heavy paper.

Line drawings should be submitted as good-quality glossy prints in the desired final size. The inscriptions should be clearly legible. Letters 2 mm high are recommended.

Halftone illustrations, i.e., photographs, shaded drawings, wash drawings, must be submitted as sharp glossy prints trimmed at right angles and in the desired final size. Inscriptions must be about 3 mm high.

9. Legends must be short and concise and should provide a brief, self-sufficient, clear description of each illustration and, as part of the text, be appended to it on a separate page or separate pages. Avoid remarks like: "For explanation, see text."

10. Tables must be numbered consecutively in arabic numerals. Each table must be typed on a separate sheet.

11. Mailing. Manuscripts and illustrations should be well packed in order to avoid damage in transit.

12. Offprints. Fifty (50) offprints of each paper are supplied free of charge. Additional offprints are available in lots of 100, provided the order is received with the corrected proof.